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ABSTRACT

The research division of the National Center for Research in Vocational Education received a 5-year grant from the U.S. Department of Education to conduct a research program on youth employability. To increase the use of the research findings, the National Center created the Knowledge Development and Utilization (KDU) project in 1983 as part of the grant. The basic KDU model is cyclical; throughout the process from research design to knowledge use, researchers and practitioners sustain a high level of communication and collaboration to ensure that research results get into public use. Using the model, the project staff developed, field tested, and finalized the following materials: introductory booklet and background research materials for teachers, and student booklets, instructors' guides, and videotape. Through the project, the researchers learned that (1) school-based practitioners are eager to try out new materials; (2) access is relatively easy, providing administrative approval is obtained; and (3) the field-trial version of classroom materials should closely approximate the final version. They also found that the employer database was the most compelling aspect of the school-based materials and that practitioners seem to be more interested in materials that they can get into the hands of students than in background material. Finally, the researchers point out, research utilization projects take much more time than generally thought. (KC)

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AN EFFECTIVE MODEL FOR APPLYING RESEARCH TO STRENGTHEN YOUR CAREER DEVELOPMENT PROGRAMS

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AN EFFECTIVE MODEL FOR APPLYING RESEARCH TO STRENGTHEN YOUR CAREER DEVELOPMENT PROGRAMS

The research division of the National Center for Research in Vocational Education received a 5-year grant from the National Institute of Education, U.S. Department of Education, to conduct a research program on youth employability. To increase the utilization of the research findings, the National Center created the Knowledge Development and Utilization (KDU) project in 1983 as part of that grant.

This paper provides a description of the KDU project, the knowledge utilization model that was used, the major activities of the project, and insights gained for improved utilization of research findings in career development programs.

Overview of the Project

At the inception of the project, the National Center's research division had completed several studies on youth employability and a number were still under way. The knowledge resulting from the research program was contained, as might be expected, in a series of technical research reports with accompanying executive summaries. The intent of the Knowledge Development and Utilization project was to facilitate the public use of these research findings by educators, trainers, and others in the career development field (referred to hereafter as practitioners). Also, the project sought to provide policymakers with research information for input into educational policy formulation. Specifically, the project set out to accomplish the following objectives:

- Design a secondary school career development program to improve youth's employability
- Communicate research findings on youth employability to practitioners and policymakers through existing knowledge utilization channels
- Provide widespread technological dissemination of youth employability research using videotape and audioconference media

The project staff achieved these objectives collaboratively, working as intermediaries between researchers and potential users of research findings. This paper addresses only the first objective. For details on the other activities of the KDU projects, please refer to the complete report (Miguel et al. 1986).

Research Findings to Be Disseminated

The Youth Employability Research Program produced research findings in two major areas of inquiry: employer demand and schooling effectiveness for employability.

The Employer Demand project was an investigation of employer-provided training and employer hiring decisions. Using a representative sample of 3,000 employers, the researchers examined the characteristics of employers and trainees. This was done to determine the nature, determinants, and quality of the training, especially as it was related to previous education and training and to subsequent economic outcomes. The Employer Hiring Decision study investigated the factors involved in the ways employers use the interview and job application processes to select new employees. A national sample of over 2,000 employers participated in various phases of this study.

The Schooling Effectiveness for Employability project examined a number of schooling variables in the High School and Beyond database, including a supplementary database (collected expressly for this project), which was drawn from 1,000 high schools in the original sample. The study included specific schooling process variables (e.g., guidance and counseling, classroom instruction, linkages to private sector, job placement service, and other schooling activities related to employability development) and examined their relationship to students' employability outcomes. Another study, Youth's Perceptions of Employer Hiring and Job Performance Standards, examined how youth's perceptions of employer standards were related to employment outcomes in the year following high school graduation. This study was conducted in four major cities located in the eastern, southern, midwinter, and central regions of the country. Over 1,200 students and 500 employers participated in this three-year study. A complementary research effort was the Field Study of Newly Hired Youth. The researchers followed 25 youth from 18-21 years of age in their employment pursuits for a one-year period to determine the nature of their experiences in job seeking, training, maintaining employment, and job leaving after they left high school.

KDU Project Staff

Rather than placing the responsibility on each researcher to disseminate his or her own research findings, the National Center created the KDU project, staffing it with individuals who had been involved in the research and who had specialized skills in knowledge utilization. According to von Hippel (1978), this is a very successful strategy. He found that knowledge utilization goals are more likely to be accomplished

when these functions are placed in the hands of a designated unit that is expressly responsible for accomplishing them.

The KDU staff consisted of a project director and two program associates. The project director brought two areas of expertise to the effort: he had served as a principal investigator of one of the major research studies on youth employability and he had considerable experience with practitioners and policymakers in a variety of research and development projects. Both program associates were skilled in the development of practitioner materials, inservice, and participation in interorganizational activities. In addition, one had worked in Washington, D.C. with the many national organizations located there, and the other had formerly worked in business and industry, holding a degree in business marketing.

Knowledge Development and Utilization Model

The following describes the theoretical base of the KDU project, the user-driven approach to knowledge utilization, and the nature of the collaborative activities used to achieve the KDU objectives.

Theoretical Base

A considerable amount of research has been amassed in the knowledge utilization field, enabling us to apply already-known principles for getting research findings into public use. Principal among the syntheses of this information is the work of Glaser, Abelson, and Garrison (1983), Putting Knowledge to Use: Facilitating the Diffusion of Knowledge and the Implementation of Planned Change. The tenets and guidelines reported in their synthesis served as the theoretical base for the Knowledge Development and Utilization (KDU) project.

The basic KDU model (see figure 1 attached) is cyclical and incorporates what Servi (1976) refers to as a reiterative mode. Throughout the process from research design through knowledge utilization, researchers and practitioners sustain a high level of communication and collaboration to ensure that research results get into public use. This consisted of the following five major steps:

1. User knowledge-needs assessment

2. Research design, execution, and reporting

3. Differentiation and diffusion of research within the knowledge system for educational practice and policy

4. Translation of research findings

5. Use in the knowledge system

From the onset of the research program in 1981, the research staff worked very closely with other researchers, employers, practitioners, and policymakers who were knowledgeable about the problems of youth employability. These individuals were instrumental in the design of the research program and in the determination of the information needs of their respective groups. Further, these and other individuals were consulted regularly during the execution of the research itself. The use of influential and knowledgeable practitioners in all phases of research, development, and dissemination has been amply demonstrated to keep them better informed and to increase the use of research findings by other practitioners. Although these activities will not be discussed in detail it is important to point out that the early involvement of practitioners contributed greatly to subsequent success in the knowledge development and utilization cycle.

Knowledge system for educational practice and policy. Recognizing that knowledge should be structured according to the various needs of potential users and that their frame of reference serves as an important determinant of use, the KDU staff sought to map the territory in which they would be working. The knowledge system for career development practice and policy is vast, complex, and fragmented. It consists of a number of open and closed subsystems, that is, information flows that would or would not be amenable to our attempts to have an impact on potential users of the research findings.

For example, there are many organizations that serve the information needs of educational practitioners. They provide a variety of information, most of which is not based on research. The primary thrust of that information is the sharing of information from one practitioner to another. For the most part, the majority of these organizations do set aside a section of their journals for research briefs. These channels of communication are relatively open to researchers to share their findings with practitioners, provided that there are strong ties to the practitioners' interests. The more common avenue for researchers to share their findings is through research journals in the education profession. Here, research is published according to whether or not it meets acceptable standards for research and research reporting. These journals, however, are rarely read by practitioners.

The more common way in which information flows in educational practice and policy is from one individual to another. Its credibility is heavily rooted in experience,

prescriptions, "sharing ideas that work," and the ability to meet pressing priorities. Authentic research findings are seldom found in this subsystem.

Translation of research findings. One of the major reasons why research does not reach practitioners is the difficulty of applying the findings in a form that is readily useable by practitioners. Researchers and practitioners alike become naysayers in this process. The former insist that the findings cannot be liberally interpreted merely to meet some need in practice. The latter complain that the findings are either self-evident or that they are too narrow to serve any useful purpose. Neither group is entirely accurate in its perceptions; consequently, considerable work needs to be carried out to translate the research findings into something that is both faithful to the research and useful in practice. The easier alternative is for the researchers to work in isolation from the potential users, writing implications and recommendations and preparing materials for practitioners. Although easier to do, these isolated efforts usually seem to have little or no effect.

The KDU Model and the User-driven Approach

Katter and Hull (1976) describe three different types of external agencies that provide new knowledge to schools: (1) collection-oriented agencies that provide knowledge utilization services to education merely as a part of maintaining and increasing their collections; (2) product-oriented agencies that want to disseminate a particular set or product line of educational information or knowledge; and (3) audience-oriented agencies that seek to meet the needs of clients. The KDU project's orientation was a combination of the latter two.

According to Roberts and Frohman (1978), the reiterative concept of knowledge utilization is greatly enhanced when user demand is driving the process. In that regard, we have characterized our KDU model (see figure 1 attached) as "user driven." That is, members of the intended audiences play a major role in (1) selecting the research findings relevant to their information needs, (2) designing the products and processes by which the knowledge is to be used, (3) developing the products and information messages, and (4) playing a part in dissemination. Our basic operating assumption for the project was that a high level of practitioner investment and commitment in knowledge utilization would ensure high acceptability and utility of the research among practitioners and policymakers.

This strategy of providing for heavy and consequential involvement of potential users was designed to overcome barriers to effective knowledge utilization such as those pointed out by Sieber (1981). He indicates that approximately

50 percent of practitioners are seeking new ideas to implement in schools. However, Sieber reports that their typical strategy is to contact other practitioners, preferably in their own school systems. Materials from external sources, he asserts, are often irrelevant and complex, which renders them low in utility. Further, materials coming from "higher up" in the procession, (i.e., from university research) convey a sense that practitioners are inferior, according to Sieber.

The user-driven method also affords an opportunity to blur the lines between two sides of what Louis (1981) calls a major issue regarding knowledge utilization as practiced by research and development agencies. She indicates that the external agency providing the knowledge has to decide whether to operate with a "technological push" (i.e., persuade clients to use preselected "valid" research) or with a "demand pull" (respond to the clients' search for relevant findings). KDU staff devised a number of strategies that lay on a continuum between the two in order to increase opportunities for information flow between the researchers and practitioners.

In short, our user-driven approach was intended to increase the relevance, ease of use, and practicability of the research findings from our studies. Not only would the resulting products of the KDU project be better for having been designed by practitioners, but also other practitioners would be more likely to use the knowledge because "some of their own" had participated in the knowledge development and utilization processes.

Collaboration

The collaboration of researchers and practitioners appeared to provide the greatest potential for maximum utilization of research findings. If successful, collaboration optimally could result in research findings that would be not only immediately available and understandable to practitioners but also relevant to the realities of their particular situation. Pelc (1978) indicates that the formation of such partnerships between researchers and potential users of information reduces some of the institutional barriers that inhibit the use of research findings. Also, collaboration is appealing to practitioners because it helps to extend limited resources and reduce unnecessary duplication of effort (Hood and Cates 1983).

Therefore, KDU's major operational strategy to enhance the utilization of our research findings was that of collaborating with a number of key individuals and organizations in the field of career development. These practitioners were not necessarily intended to be the ultimate users of the research; rather, they would serve, as Havelock (1969) suggests, as linkers with the target audience.

Characteristics of KDU collaborators. KDU staff collaborated with 7 school districts to develop the career development materials: Columbus, Ohio; Oakland, California; Portland, Oregon; Boston, Massachusetts; Hyannis, Massachusetts; Tampa, Florida; and Denver, Colorado. The emphasis was on accomplishing something worthwhile for all involved. There are four essential characteristics of the collaboration that we undertook (Hood and Cates 1983). First, agreement was between organizations although individuals carried out the collaborative activities. Second, communication regarding such matters as the purpose of the arrangement, level of investment, personnel, and activities to be conducted were formalized in person and confirmed in writing by letter. Third, the emphasis was on joint knowledge development and utilization, that is, full participation in all activities and decisions affecting the collaboration. Fourth, the activities built upon one another to form an enduring relationship, not merely one-shot attempts at dissemination.

The importance of communication and personal interaction. Communication was an essential mechanism for putting knowledge to use, inducing desired changes and spreading knowledge and innovation. Glaser and Taylor (1973) found that the successful research projects were characterized by a high level of communication with and involvement of potential users. They also noted that potential obstacles to knowledge utilization then become shared concerns. The KDU staff, therefore, made special efforts to communicate with a wide group of potential supporters and users of the research.

The KDU staff was prepared to "sell" the research to the collaborators and to anticipate a certain amount of resistance. The experience of others indicated that we should create a climate of willingness for practitioners to participate in our knowledge utilization efforts. In many cases, such collaboration could mean taking time away from other duties, finding appropriate colleagues to assist in the effort, and in the case of schools, justifying the class time to try out materials. In short, while gaining access to potential users beyond those who helped design the research was an immediate concern, the first task was to convince the collaborators that the research findings and participation in the knowledge utilization activities were worthwhile.

A number of studies (e.g., Glaser and Taylor 1973; Rich 1979; Louis 1983) found that the one variable that could be manipulated to increase knowledge utilization was personal interaction with potential users of research findings. Therefore, the KDU staff invested heavily in personal contacts with its collaborators in order to provide the catalyst for information-seeking behavior and other forms of cooperation. Personal interaction was also considered very important to create trust in the research findings.

The Gatekeepers

Allen (1977) found that the role of the "gatekeeper" was crucial in achieving effective knowledge utilization. The KDU staff, therefore, concentrated considerable effort in identifying these individuals and in enlisting their support in achieving our KDU objectives. This approach, while crucial, was also found not to be the most common one used in the dissemination field (Price and Bass 1969). This was partly because it requires considerable effort and time to identify and cultivate these individuals who control the flow of information to organizational members and who can significantly affect the likelihood of durable knowledge utilization.

The reason that the staff pursued this path is that the gatekeepers assured "privileged" access to the ultimate target audiences. In order to obtain this access, the staff had to prove their professional competence in research and application to the associations' respective fields. This process involved demonstrating sensitivity to the gatekeepers' information needs. The following summarizes some of the characteristics of the groups with whom the KDU staff collaborated: researchers, practitioners, and policymakers.

Researchers. Although the researchers were members of the same organizational unit as the KDU staff, they functioned as a collaborating group in these knowledge utilization efforts. They had produced their research reports, which were the input into the KDU project. They even had made attempts to prepare information to be used by practitioners. However, they essentially viewed their role as researchers and viewed the KDU staff as their link to the world of practice.

In order to work effectively with the researchers, the KDU staff had to be ever mindful of the basic values and orientation that motivate researchers. Researchers' primary dissemination efforts are often driven by the reward structures within their respective professions or scholarly disciplines. In this case, the research team was comprised of 3 economists, 2 sociologists, 1 educational anthropologist, and 1 educational researcher. Like other researchers, they were interested in knowledge for its own sake, the quality of research information supplied to the scientific community, and publication in scholarly journals.

Although these researchers were interested in improving practice as it relates to the social problems investigated in their studies, most did not possess the knowledge utilization skills or the time to provide practitioners with products or technical assistance that are highly useful.

Practitioners. Practitioners seem to be in a different world. They have a different set of values, problem norms, cognitive styles, rewards, and reference groups than do researchers seeking basic knowledge. Even their ways of communicating about the same phenomena differ. Jolly (1967) reports that the communication differences between practitioners and researchers can often result in mutual distrust and lack of communication. This poses a significant problem for knowledge utilization. Failing to give sufficient attention to these differences in value orientations is likely to cause the practitioner to reject the researcher's information.

Thus, a "vicious circle" exists in the fields of educational research and practice. Many practitioners do not think that research has significant relevance to their work. This perception creates an atmosphere in which low priority is given to research and research utilization efforts. A credibility gap is created and it is manifested in the researcher's reports. Not only do most practitioners find research reports unreadable, but they take offense at the fact that researchers seem to be unaware of what has already been accomplished in practice. Improving on these two shortcomings of research reports may increase the impact of research on practice; however, for the most part, practitioners are "doers" rather than readers. They tend to rely on oral communication, namely, demonstration, training, word of mouth, and nonprint media.

Glaser and his associates (1983) summarized the differences between practitioners and researcher that could inhibit the flow of information between them. Table 1 graphically illustrates the polarity in these two groups.

TABLE 1

DIFFERENCES BETWEEN RESEARCHERS AND PRACTITIONERS

Researcher	Practitioner
o Seeks rigor	o Must be realistic
o Logical	o Intuitive
o Statistical skills	o Clinical skills
o Looks for patterns in a population	o Views each cash as unique
o Lives with the hypothetical	o Wants to know "how"
o Asks the question "why"	o Process orientation
o Criterion orientation	o Prescriptions
o Analysis	o Doing and implementing
o Knowing and understanding	o Relies on precedent, common sense, intuition
o Relies on canons of science	
o Interprets data within scientific constraints	o Interprets data beyond their scientific limits to fit broader needs of practice
o Views applications of research as vulgar popularizations	o Views research as addressing trivial problems

SOURCE: Excerpts from Glaser, Abelson, and Garrison (1983): 369-370.

The KDU staff, having previously worked in both arenas, tended to view these rather cynical observations cautiously. In fact, Bowman (1978) found much overlap in researchers and practitioners' attitudes toward knowledge utilization, thereby revealing a number of common interests. The KDU staff intended to capitalize on these common interests and on their common goal of improving the employability of youth.

Practitioner Review Panel. The practitioners met with the KDU staff to review the aims of the KDU project and objectives of the panel review. Each received all 6 of the products with instructions and forms for completing the review. After the reviews were completed, the panel reconvened with the KDU staff to discuss the strengths and weaknesses of each product and to make suggestions for revision prior to the field trials.

In the opinion of this panel, only the student materials were reasonably close to an acceptable standard for field implementation. The panel's annotations on review copies and its comments made at the meeting provided excellent guidance for revising these materials. The inservice materials for administrators, teachers, and employers were not acceptable as written. For the most part, the panel thought they were condescending and provided little in the way of new information. Also, they thought they were unnecessarily wordy.

The panel's overall assessment of the materials was that, although they did not provide a great deal of new information on youth employability, they were unique in that they gave new insights into employers' priorities and they made good use of the research data. For example, one panelist expressed the consensus of the group in saying that she "had been telling students these things all along, but having the data to back them up would increase the effectiveness of the learning."

Field Trials. The KDU staff solicited recommendations for potential field trial sites from the National Center staff and the staffs of other NIE Laboratories and Centers. The staff invited 15 school systems to participate in the field test of the materials. Seven accepted the invitation and entered into the collaborative process with the KDU staff. Representatives of the following public school systems participated in the field trials:

- o Barnstable County, Massachusetts
- o Boston, Massachusetts
- o Columbus, Ohio
- o Denver, Colorado
- o Hillsborough County (Tampa), Florida
- o Oakland, California
- o Portland, Oregon

Prior to the field trials, the KDU staff provided orientation sessions at each site. They explained the purposes of the materials and the field trials and gave instructions on how to provide evaluative feedback for KDU. During the field trials, each product was implemented in the manner in which it would ultimately be used (i.e., teachers and students used the classroom materials, and employers and administrators reviewed the materials designed for them).

To the extent possible, KDU staff observed the implementation of the materials, recording notes on their observations. When the field test was completed at each site, a KDU staff member conducted a debriefing session to discuss the results of the implementation with the practitioners. The bottom-line questions for these sessions were: Would you use these materials in your schools again? Would you recommend that your school system purchase these materials? What would have to be done to the materials to get an affirmative response to the former questions?

Final Preparation of Materials

The information from the field trial sessions, annotated copies of the materials, and practitioners' written evaluations were synthesized. From these syntheses, KDU staff developed specifications for the final revision of the materials. All of the materials required substantial revisions to improve their acceptability to the collaborating practitioners. As in the panel review, the classroom materials were better received than were the inservice materials for administrators, educators, and employers.

The classroom materials received little criticism on their substance. The practitioners thought the research information in them was very informative and useful. Their major criticism was directed at the format and ease of use of the materials. The three information booklets for use in inservice and gaining community support for the program were deemed unacceptable in their field-trial form. The practitioners recommended that the KDU staff prepare one booklet to introduce the basic concepts and purpose of the program and to delineate the roles of various individuals. They indicated that the most effective way to introduce for this type of program would be to gather together educators, employers, parents, and others interested in youth employability and to use an introductory booklet to gain their support. The practitioners also recommended that the multi-media package include a paper that provided considerably more background ("more beef" in their words) on the research--not a research report but something written in plain English.

The KDU staff made the final revisions to the materials and produced the multi-media package which contained the following products:

The Employer's Choice

Orientation and Inservice Materials

Your Role in Youth Employment
(Introductory Booklet)

In-School Preparation for Employment
(Background on Research)

Classroom Materials

What Are Employers' Priorities?
Student Booklet and Instructor's Guide

What Works in the Job Search?
(Instructor's Guide and Videotape)

What Works On The Job?

Getting A Job
Becoming An Insider
Learning At The Worksite
Leaving A Job
(4 Booklets and Instructor's Guide)

The multi-media package of school-based products is available from the National Center's Marketing division.

Lessons Learned

> More is learned from the single success than from the multiple failures. A single success proves it can be done. Thereafter, it is necessary only to learn what made it work." To this we would add "and how it can most fruitfully be brought to the attention of potential users." (Glaser, Abelson, and Garrison 1983, p. 435).

The following is a synopsis of the insights gained in the knowledge development and utilization project. It is intended as a guide for others interested in a user-driven approach to applying research to career development practice.

School-based practitioners are eager to try out new materials, and access is relatively easy provided that administrative approval is obtained. Teachers and counselors seem to be ever alert to obtain new materials to improve educational practice. They are flattered to be involved in the development of these materials. Formal approval to try out the materials, however, requires the endorsement of administrators in the school system. To obtain this endorsement, project

staff met with the educators who were to conduct the field trials, their department heads, curriculum coordinators for the school system, and building administrators (e.g., high school principals). Their approvals were contingent on the quality of the content of the materials, the ease of implementation, the amount of instructional time required, and the perceived benefits to students. Unlike the associations, school-based practitioners do focus on the quality of the research. Instead, they judge of the quality of the resulting information against the quality of their existing curriculum and instructional materials.

The employer database was the most compelling aspect of the school-based materials. For the most part, the educators were in agreement with the message contained in the materials. In fact, they said they already knew much of the content. However, they also said that their existing materials contained only conventional wisdom on employability development and was not research based. The employer data in KDU material added sophisticated knowledge by about employability development, set priorities for job search strategies more clearly, and lent authority to the advice given to students.

The field-trial version of classroom materials should closely approximate the intended final version. In an attempt to keep costs down, the field trial version of materials was in draft form and lacked graphics. Consequently, most of the practitioners' suggestions for versions centered on how to improve the attractiveness of the materials. These suggestions could have been more meaningful if they were based on what the materials really would look. This was particularly true of the student materials. Someone facing the same situation would have to weigh the costs in terms of time and money against the possibility of producing better products.

Practitioners seem to be more interested in materials that they can get into the hands of students than in background material. The field test resulted in two interesting outcomes. All the classroom materials were well received. Recommendations to revise them involved expanding content and learning activities. Recommendations regarding inservice materials (i.e., background materials for administrators, teachers, and employers) involved reducing the amount of information and providing action guidelines. Therefore, the three background booklets were collapsed into one booklet to provide a brief overview of the research and instructional program and action steps that school staff and community resource people could follow to support the program.

Whether your own organization or a commercial publisher is responsible for publishing the products, be prepared to address a number of marketing and production concerns. Having school products that are based on good research and that reflect a high degree of involvement of potential users in their

development will not assure their publication. Before anyone is willing to invest time and funds in publishing products, they want to be sure that the products are marketable. These marketing criteria are grounded in publisher's concepts of the competition, the final cost to consumers, and the size of the potential market. The KDU market survey revealed that the products were sufficiently unique to be salable and that they would capture a goodly portion of the market. The main issue was to produce materials at a reasonable cost and still maintain their products' integrity. This involved lengthy negotiations over matters such as length of printed matter, formats, graphics, packaging, and "catchy" titles. Fortunately, project staff had involved the National Center's marketing staff throughout the revision process. Nevertheless, the process took twice as long as anticipated.

Last and most important, plan enough time for each of the steps of the knowledge development and utilization process. Then, double that time and cut out half of the steps. KDU cannot underemphasize the value of planning in working with the vast numbers of people required to carry out knowledge development and utilization activities effectively. Even good planning should never lull you into a sense that all will go smoothly. Somebody or something out there will remind you differently. But if you do your homework and stay on top of everything, you can achieve what you have set out to do--to most people's satisfaction and to some people's amazement.

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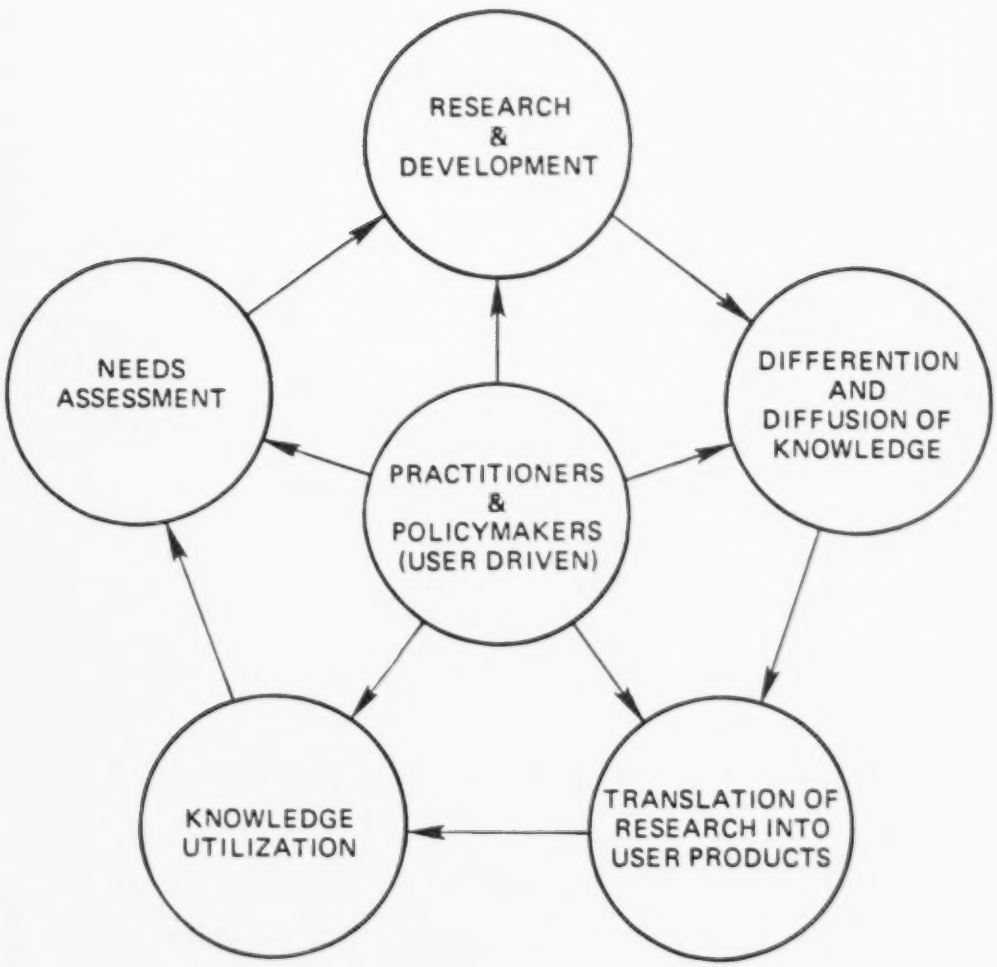

Figure 1. Knowledge Development and Utilization Model